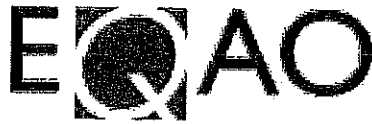


Education Quality and
Accountability Office



GRADE 6

Assessment of Mathematics

SPRING 2008

Samples of Student Work

Question #27

Scoring Guide for Mathematics Open-Response Question 27

Code	Descriptor
B	<ul style="list-style-type: none"> blank: nothing written or drawn in response to the question
I	<ul style="list-style-type: none"> Illegible: cannot be read; completely crossed out/erased; not written in English Irrelevant content: does not attempt assigned question (e.g., comment on the task, drawings, “?”, “!”, “I don’t know”) Off topic: no relationship of written work to the question
10	<p>Problem-solving process to determine and explain the relationships among fractions, decimal numbers, and percents shows limited effectiveness due to</p> <ul style="list-style-type: none"> minimal evidence of a solution process limited identification of important elements of the problem too much emphasis on unimportant elements of the problem no conclusions presented conclusion presented without supporting evidence
20	<p>Problem-solving process to determine and explain the relationships among fractions, decimal numbers, and percents shows some effectiveness due to</p> <ul style="list-style-type: none"> an incomplete solution process identification of some of the important elements of the problem some understanding of the relationships between important elements of the problem simple conclusions with little supporting evidence
30	<p>Problem-solving process to determine and explain the relationships among fractions, decimal numbers, and percents shows considerable effectiveness due to</p> <ul style="list-style-type: none"> a solution process that is nearly complete identification of most of the important elements of the problem a considerable understanding of the relationships between important elements of the problem appropriate conclusions with supporting evidence
40	<p>Problem-solving process to determine and explain the relationships among fractions, decimal numbers, and percents shows a high degree of effectiveness due to</p> <ul style="list-style-type: none"> a complete solution process identification of all important elements of the problem a thorough understanding of the relationships between all of the important elements of the problem appropriate conclusions with thorough and insightful supporting evidence

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer. Audrey has the ~~most~~ amount of money left because Josie has 25 left and Audrey has 32 left and every body else has less than her.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

Christina - 25% left.
Josie - 20% left
Audrey - 32% left
Manny - 15% left

Audrey has 32% left, the biggest amount leftover.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

Christina = 0.75
Josie = 0.8
Audrey = 0.68
Manny = 0.85

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

$$\text{Manny} = \frac{17 \times 5}{20 \times 5} = \frac{85}{100} \rightarrow 85\% = 0.85 \text{ money left} = 15\%$$

$$\text{Audrey} = \frac{68}{100} = 68\% \text{ money left} = 32\%$$

$$\text{Josie} = \frac{4 \times 20}{5 \times 20} = \frac{80}{100} = 80\% \text{ money left} = 20\%$$

$$\text{Christina} = 75\% = 25\%$$

So the largest percentage of money left was Audrey's.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

$$\frac{4}{5} \rightarrow \frac{40}{50} \rightarrow \frac{80}{100}$$

Josie

Audrey

$$0.68 = 68\%$$

$$68 - 100 = 32$$

$$\text{Christina} = 25\% \quad \text{Josie} = 20\%$$

$$\text{Audrey} = 32\% \quad \text{Manny} = 15\%$$

Christina

$$75\% - 100\% = 25\%$$

$$\text{Manny} \rightarrow \frac{17}{20} \rightarrow \frac{85}{100}$$

Christina has the most money left.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

Christina spent the most money but she only spent 5 more dollars than Manny because he had 17.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

Josie because $\frac{4}{5}$ is less than $\frac{17}{20}$ and 0.68 and 75%

$$\frac{17}{20} = 85$$

$$75\% = \frac{3}{4}$$

$$\frac{4}{5} = 80$$

$$0.68 = \frac{68}{100}$$

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer. Josie = 20% Christina = 25%

Audrey = 32% Manny = 30%

• So Audrey has the most percentage left then it is, Manny, then, Christina, then Josie.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

$$\frac{4}{5} \quad \frac{75}{100} \quad \frac{17}{20} \quad \frac{68}{100}$$

I think Audrey has the most money left because everyone else has spent more money. I know because all their numerators are very close to their denominators.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

The person who has the largest Amount is Audrey because she only use \$68 Dollars of her money and \$32 Dollars the way I found this out was by putting a decimal into a fraction and putting that fraction into percentage and seeing how percent was left before she reached her whole amount.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

$$\text{Josie} \rightarrow \frac{4}{5} = 80\% = 1.80 \text{ or } \frac{80}{100} \longrightarrow \frac{80}{100}$$

$$\text{Christina} \rightarrow 75\% = 0.75 \text{ or } \frac{75}{100} \longrightarrow \frac{75}{100}$$

$$\text{Audrey} \rightarrow 0.68 = \frac{68}{100} \longrightarrow \frac{68}{100}$$

$$\text{Manny} \rightarrow \frac{17}{20} = \frac{85}{100} \quad \begin{array}{r} 17 \\ \times 5 \\ \hline 85 \end{array} \longrightarrow \frac{85}{100}$$

$\frac{68}{100}, \frac{75}{100}, \frac{80}{100}, \frac{85}{100} = 85\%$. Manny has the largest percent of money left because 85% is the closest to 100 & the closest to 100 means you have more money left.

7.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

$$\text{Josie} = 80\%$$

$$\text{Christina} = 75\%$$

$$\begin{array}{r} 1 \\ 4 \overline{) 6} \\ \underline{4} \\ 2 \end{array} \quad \frac{4}{5} = \frac{8}{10}$$

$$\text{Audrey} = 68\%$$

$$0.68$$

$$\text{Manny} = 60\%$$

$$\frac{68}{100}$$

$$\begin{array}{r} 11 \\ 17 \overline{) 2010} \\ \underline{17} \\ 30 \end{array} \quad \frac{17}{20} = \frac{34}{40}$$

$$\begin{array}{r} 1 \\ 34 \overline{) 4010} \\ \underline{34} \\ 60 \end{array}$$

Manny has the most money left

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

Christina has the largest percentage of her money left
 because she only spent 75% out of her 100%

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left? Josie

Justify your answer.

Josie 80%

Christina 75%

Audrey 68%

Manny 70%

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends $\frac{5}{10}$ of her money, Audrey spends 0.8 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

Christina 75%

Audrey 68%

Josie 80%

Manny 85%

$$\frac{4}{5} \times 20 = 80$$

$$\frac{5}{10} \times 20 = 100$$

$$\frac{17}{20} \times 20 = 85$$

$$20 \times 5 = 100$$

Manny has the largest percentage of money left

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

\therefore Manny has the largest percentage left because she has $\frac{17}{20}$.

$$I/T = 1 \text{ think}$$

Section 2: Mathematics

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

Christina has 25% Left because 75% she has spent

Josie has 5% Left I/T because 95% of hers

Audrey has 30% Left because she spent 68%

Manny has 3% Left because he spent 17%

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

<u>Josie</u>	<u>Christina</u>	<u>Audrey</u>	<u>Manny</u>
$\frac{4}{5} = 80\%$ spent	75% spent	$0.68 = 68\%$ spent	$\frac{17}{20} = 85\%$ spent
20% left	25% left	32% left	15% left

Therefore Audrey has the largest percentage of money left.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.	P	N	W
		<p>Josie - $\frac{4 \times 20}{5 \times 20} = \frac{80}{100} = 80\%$ Christina - 75% Audrey - 68% Manny - $\frac{17 \times 5}{20 \times 5} = \frac{85}{100} = 85\%$</p>	<p>The person who spent the most money was Manny because she spent 85%. I got this by changing everything in to percents.</p>

- Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

Josie — 45%
Christina — 75%
Audrey — 68%
Manny — 37%

Christina has spend 75% of money

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

$$\begin{array}{l} \text{Josie} \\ \hline \frac{4}{5} = \frac{80}{100} \quad 80\% \end{array}$$

$$\begin{array}{l} \text{Manny} \\ \hline \frac{17}{20} = \frac{85}{100} \quad 85\% \end{array}$$

Manny has the largest percent of money left.

$$\begin{array}{l} \text{Christina} \\ \hline 75\% \end{array}$$

$$\begin{array}{l} \text{Audrey} \\ \hline 68\% \end{array}$$

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends $0.\underline{68}$ of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer. Audrey has the largest percentage of her money left. I got this because $0.\underline{68}$ is equal to 68% (out of 100) $100 - 68 = \underline{32}$. She still has 32% of her money. Josie's $\frac{4}{5}$ is equal to 80% $100 - 80 = \underline{20}$. She still has 20% of her money. Christina spent 75% $100 - 75 = \underline{25}$. She still has 25% of her money. Manny's $\frac{17}{20}$ is equal to 85% $100 - 85 = \underline{15}$. He still has 15% of his money. Taking a look at the underlined numbers, the first, Audrey's, has the most. Therefore, Audrey has the most money left.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer. Audrey has the largest percentage left of her money. This is because when I put Josie in percentage and it gave me 80%, the Christina's which is 75%, then I did Audrey which is 68%, then Manny which is 85.

$$\frac{4}{5} = 4 \div 5 \times 100 = 80\% \text{ (Josie), Christina } 75\%,$$

$$\text{Audrey } 0.68 \div 1.00 \times 100 = 68\%, \text{ Manny } 17 \div 20 \times 100 = 85\%$$

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

$$100 \div 5 = 20$$

$$4 \times 20 = 80$$

$$17 \times 5 = 85$$

Josie - 80%

Christina - 75%

Audrey - 68%

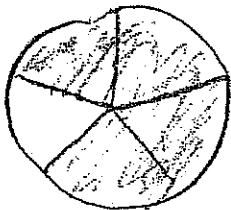
Manny - 85

Audrey has the largest percentage of money left.

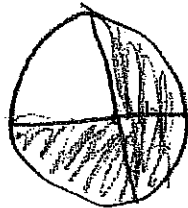
Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

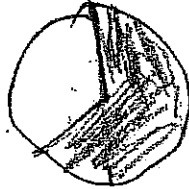
Justify your answer.



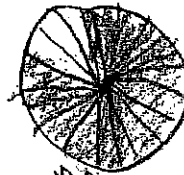
Josie



Christina



Audrey



Manny

as you can see, Manny has the most money left

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

$$J: \frac{4}{5}$$

$$C: 75\%$$

$$A: 0.68$$

$$M: \frac{17}{20}$$

J = Josie
C = Christina
A = Audrey
M = Manny.

Audrey has the largest percentage left, she has 32% left. I know this because percentage means part of 100 and if Audrey spends 0.68 of her money, she has 0.32 left, $0.32 = 32\%$.

$$J: 4 \div 5 = 0.8 \quad 80\% \quad 20\% \text{ left}$$

$$C: 100 - 75 = 25 \quad \text{so C had } 25\% \text{ left.}$$

$$A: \begin{array}{r} 0.91 \\ 68 \\ \hline 32 \end{array} \quad \text{A had } 32\% \text{ left}$$

$$M: 17 \div 20 = 0.85 \quad \begin{array}{r} 0.91 \\ 85 \\ \hline 15 \end{array} \quad 15\% \text{ left.}$$

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

Name	% gone
Josie	80%
Christina	75%
Audrey	68%
Manny	85%

$$\frac{17}{20} = \frac{85}{100} \quad \frac{4}{5} = \frac{80}{100}$$

Audrey has the largest percentage of her money she has 32% of her money left. I know this because she has the smallest percentage of her money spent.

$$\begin{array}{r} 89\% \\ 100\% \\ - 68\% \\ \hline 32\% \end{array}$$

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

$$\begin{array}{r}
 75\% \\
 0.68 - 68\% \\
 \hline
 0.85 - 85\% \\
 20 \overline{) 17.0} \\
 \underline{16.0} \\
 1.00 \\
 \underline{1.00} \\
 0 \\
 0.80 \\
 5 \overline{) 4.0} \quad 80\% \\
 \underline{4.0} \\
 0
 \end{array}$$

divide the denominator
with the numerator

Manny had the biggest
percentage of money left

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer.

Josie spent
31%

Audrey spent
93%

Christina spent
75%

Manny spent
85%

Josie has the most money left over. I know this because I turned all the fractions and decimals to percentages and Josie had the smallest percentage spent so she had the most money left over.

Josie, Christina, Audrey and Manny go shopping. Josie spends $\frac{4}{5}$ of her money, Christina spends 75% of her money, Audrey spends 0.68 of her money and Manny spends $\frac{17}{20}$ of his money.

Who has the largest percentage of their money left?

Justify your answer. I first need to change their money into percentages. Josie: 80% ($\frac{4}{5} \times 20 = \frac{80}{100}$) Christina (her money is already in percentage) 75% Audrey: 68% ($0.68 = 68\%$) Manny: 35% ($\frac{17}{20} \times 5 = \frac{35}{100}$)

Manny, she has 65% left.